

WHAT IS CLAIMED IS:

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1. A composite structural article comprising:
  - (a) a core body fabricated from a high-strength material, said core body having a plurality of perforations; and
  - (b) a plastics part of thermoplastic material abutting at least a portion of a surface of said core body,

wherein said core body is joined to said plastics part by means of joining elements which extend through at least some of said perforations, said joining elements forming an interlocking engagement between said core body and said plastics part that is perpendicular to the plane of said core body, said joining elements and said perforations being mutually dimensioned to allow reversible frictional movement between said core body and said plastics part along at least one of the x and y direction of the plane of each of said core body and said plastics part.

2. The composite structural article of Claim 1 wherein said perforations are elongated holes, which allow for a principal expansion of said plastics part (b) relative to said core body (a) along the longitudinal axis of the elongated holes.

3. The composite structural article of Claim 1 wherein said perforations have a larger dimension in both the x and y directions than both the x and y dimensions of the joining elements extending therethrough.

4. The composite structural article of Claim 1 wherein said plastics part (b) forms a rib structure having a plurality of intersecting ribs, said joining elements being located at the intersections of said ribs.

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5. The composite structural article of Claim 1 wherein the thermoplastics material of said plastics body (b) is selected from at least one of polyamide, polyester, polyolefin, styrene copolymer, polycarbonate, polyphenylene oxide, polyphenylene sulfide, polyimide, PSO and PEEK.

6. The composite structural article of Claim 1 wherein said high-strength material of said core body (a) is selected from at least one of fiber-reinforced thermoplastics, thermoset plastics and metals.

7. The composite structural article of Claim 1 wherein said joining element is selected from at least one of thermoplastic rivets that are continuous with said plastics part (b), snap fittings and screws.

8. The composite structural article of Claim 1 further comprising at least one fixed joining element that provides no reversible frictional movement between said core body and said plastics part along the x and y directions of the plane of each of said core body and said plastics part.

9. The composite structural article of Claim 1 wherein said plastics part (b) is formed by injection molding thermoplastic material onto at least a portion of the surface of said core body (a), said joining elements being concurrently formed by means of a portion of the injection molded thermoplastic material extending through at least some of said perforations.

10. The composite structural article of Claim 9 wherein, prior to injection molding, removable cores are placed in said perforations, said cores preventing at least a portion of the edges of said perforations from being embedded in the thermoplastic material injected therethrough, said cores being removed after injection molding, thereby resulting in said

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perforations and said joining elements extending therethrough being mutually dimensioned to allow reversible frictional movement between said core body and said plastics part along one of the x and y direction of the plane of each of said core body and said plastics part.

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11. The composite structural article of Claim 9 wherein said joining element is a plastic rivet having a rivet shaft and a rivet head, said plastic rivet being continuous with said plastics part (b), said rivet shaft extending through said perforation, and said rivet head forming said interlocking engagement between said core body and said plastics part that is perpendicular to the plane of said core body.

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12. The composite structural article of Claim 9 further comprising additional joining elements selected from at least one of snap fittings and screws.

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13. An article of manufacture comprising the composite structural article of Claim 1.

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14. The article of manufacture of Claim 13 wherein said article of manufacture is selected from motor vehicle components and electronics components.